Weekly Report

梅鸿辉

November 18, 2018

1. RSATree

继续修改论文，由于中途插入一些其他工作，进度不及预期
争取周二能把论文全部过一遍

2. 感知-尺寸

正在进行正式实验，中途可能还会有一些小调整。

3. 明年投稿项目

由于王智勇同学开题报告快要到deadline，简单想了一个方向让他去看看写写。大体思路：通过聚合降低预测模型和过程的复杂程度、通过多角度的观测整合诠释结果。

具体想法见附件PPT。

4. 教科书修订

修改内容

- 5.3.2-1 增加了一小段描述（图5.17）
- 5.3.2-3 增加深度学习的描述（图5.23）
- 5.4.2 增加一小段描述（图5.34）
- 5.4.3-4 添加一段主动学习的描述（图5.36）
- 5.5.2-4 增加一小段描述（图5.40）
- 5.5.2-5 增加两幅图（图5.42/5.43）和一小段描述
- 5.5.3 增加对神经网络用于时序预测的描述
- 添加一些新图片
- 整理引用和序号
- 习题

5. 本周总结

工作日平均每天工作约8小时，周末约5小时，共约45小时。

Papaer Reading

5.1 RSATree相关

看了些数据库里range query的加速方法。有很多和我们思路很像的（分割空间），但大多数考虑的时数据库的update cost。

[1] R. Ballester-Ripoll and R. Pajarola, “Tensor Decompositions for Integral Histogram Compression and Look-Up,” IEEE Trans. Vis. Comput. Graph., vol. XX, no. XX, 2018.

[2] C. Lee and Y. Li, “Flexible Data Cube for Range-Sum Queries in Dynamic OLAP Data Cubes Flexible Data Cube for Range-Sum Queries in Dynamic OLAP Data Cubes Institute of Computer Science and Information Education , Department of Computer Science and Information Engineering ,” no. May, 2015.

[3] Y. Tao and D. Papadias, “Range aggregate processing in spatial databases,” IEEE Trans. Knowl. Data Eng., vol. 16, no. 12, pp. 1555–1570, 2004.

[4] S. Govindarajan, P. K. Agarwal, and L. Arge, “CRB-tree: An efficient indexing scheme for range-aggregate queries,” Database Theory—ICDT 2003, pp. 1–15, 2003.

[5] D. Zhang, V. J. Tsotras, and D. Gunopulos, “Efficient Aggregation over Objects with Extent,” Proc. 21th ACM Int. SIGACT-SIGMOD-SIGART Symp. Princ. Database Syst. (PODS), Madison, Wisconsin, USA, pp. 121–132, 2002.

[6] C. Y. Chan and Y. E. Ioannidis, “Hierarchical cubes for range-sum queries,” Proc. 25th VLDB Conf., no. May, pp. 675–686, 1999.

[7] C.-T. Ho, R. Agrawal, N. Megiddo, and R. Srikant, “Range queries in OLAP data cubes,” Proc. 1997 ACM SIGMOD Int. Conf. Manag. data - SIGMOD ’97, pp. 73–88, 1997.

5.2 明年投稿相关

主要浏览了一下Pridictive Visual Analysis相关的工作，感觉我现在这个想法还没人做过，也有一定的可行性。

[1] Y. Lu, R. Garcia, B. Hansen, M. Gleicher, and R. Maciejewski, “The State-of-the-Art in Predictive Visual Analytics,” Comput. Graph. Forum, vol. 36, no. 3, pp. 539–562, 2017.

Pridictive Visual Analysis的综述

[2] C. Xie, W. Zhong, and K. Mueller, “A Visual Analytics Approach for Categorical

Joint Distribution Reconstruction from Marginal Projections," IEEE Trans. Vis. Comput. Graph., vol. 23, no. 1, pp. 51–60, 2017.

交互式的从边缘概率重构原始数据

[3] J. Krause, A. Perer, and K. Ng, "Interacting with Predictions: Visual Inspection of Black-box Machine Learning Models," Proc. 2016 CHI Conf. Hum. Factors Comput. Syst., pp. 5686–5697, 2016.

[4] F. Zhou et al., "Dimension reconstruction for visual exploration of subspace clusters in high-dimensional data," IEEE Pacific Vis. Symp., vol. 2016–May, no. 1, pp. 128–135, 2016.

[5] T. Santos and R. Kern, "A Literature Survey of Early Time Series Classification and Deep Learning," Int. Work. Sci. Appl. Methods Ind. 4.0, no. 1793, pp. 31–38, 2016.

[6] Y. Ma, Z. Cao, and W. Chen, "A survey of visualization-driven interactive data mining approaches," Jisuanji Fuzhu Sheji Yu Tuxingxue Xuebao/Journal Comput. Des. Comput. Graph., vol. 28, no. 1, pp. 1–8, 2016.

[7] C. Zhang et al., "A visual analytics approach to high-dimensional logistic regression modeling and its application to an environmental health study," IEEE Pacific Vis. Symp., vol. 2016–May, pp. 136–143, 2016.

[8] T. Muhlbacher and H. Piringer, "A partition-based framework for building and validating regression models," IEEE Trans. Vis. Comput. Graph., vol. 19, no. 12, pp. 1962–1971, 2013.

[9] N. Elmqvist and J. D. Fekete, "Hierarchical aggregation for information visualization: Overview, techniques, and design guidelines," IEEE Trans. Vis. Comput. Graph., vol. 16, no. 3, pp. 439–454, 2010.

5.3 教科书修订-相关工作

[1] D. Liu, P. Xu, and L. Ren, "TPFlow : Progressive Partition and Multidimensional Pattern Extraction for Large-Scale Spatio-Temporal Data Analysis."

[2] M. Berger, J. Li, and J. A. Levine, "A Generative Model for Volume Rendering," IEEE Trans. Vis. Comput. Graph., vol. 14, no. 8, 2018.

[3] H. C. Cheng et al., "Deep-learning-assisted Volume Visualization," IEEE Trans. Vis. Comput. Graph., vol. Vi, no. c, 2018.

[4] G. Atluri, A. Karpatne, and V. Kumar, "Spatio-temporal data mining: A survey of problems and methods," ACM Comput. Surv., vol. 51, no. 4, 2018.

[5] O. Igouchkine, S. Member, Y. Zhang, and K. Ma, “Multi-Material Volume Rendering with a Physically-Based Surface Reflection Model,” IEEE Trans. Vis. Comput. Graph., vol. 24, no. 12, pp. 3147–3159, 2018.

[6] Y. Wang, D. Archambault, C. E. Scheidegger, and H. Qu, “A Vector Field Design Approach to Animated Transitions,” IEEE Trans. Vis. Comput. Graph., vol. 24, no. 9, pp. 2487–2500, 2018.

[7] M. Hadwiger, M. Mlejnek, T. Theußl, and P. Rautek, “Time-Dependent Flow seen through Approximate Observer Killing Fields,” vol. 2626, no. c, 2018.

[8] L. Yang, Y. Zhang, J. Chen, S. Zhang, and D. Z. Chen, “Suggestive Annotation: A Deep Active Learning Framework for Biomedical Image Segmentation,” no. 1, pp. 1–8, 2017.

[9] P. Ljung, J. Krüger, E. Groller, M. Hadwiger, C. D. Hansen, and A. Ynnerman, “State of the Art in Transfer Functions for Direct Volume Rendering,” Comput. Graph. Forum, vol. 35, no. 3, pp. 669–691, 2016.

[10] J. Beyer, M. Hadwiger, and H. Pfister, “State-of-the-Art in GPU-Based Large-Scale Volume Visualization,” Comput. Graph. Forum, vol. 34, no. 8, pp. 13–37, 2015.

[11] J. Tao, S. Member, J. Ma, and S. Member, “A Unified Approach to Streamline Selection and Viewpoint Selection for 3D Flow Visualization,” vol. 19, no. 3, pp. 393–406, 2013.

[12] P. Esling and C. Agon, “Time-series data mining,” ACM Comput. Surv., vol. 45, no. 1, pp. 1–34, 2012.

计划-短期

TASK	DESCRIPTION	SCHEDULE
尺寸感知	正在进行正式实验	
RSATree	完成修改	
论文套路总结	添加CHI投稿中总结的一些写作规律	

计划-中期

TASK	DESCRIPTION	SCHEDULE
尺寸感知	论文（实验结果部分）	十一月
VIS投稿	之前构思过的时序预测	十一月开始

计划-长期

TASK	DESCRIPTION	SCHEDULE
毕业论文	目前定位为可视设计方向	开始考虑一下整体构思

Works Progresses

TASK	PROGRESS	TODO	ISSUES	DATE
RSATree	修订投TVCG	整理代码、跑通对比项目		
电子学报	已发表			
ECharts论文	已发表			
尺寸感知		实验		